

# THE CERTIFICATION OF THE SPERWER-RNLA UAV SYSTEM



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Main Driver for action

SECURITY

SAFETY



Quality of life



# Sperwer-RNLA UAV Certification



- **RNLAF Airworthiness Program**
- **RNLA Sperwer program**
- **SPERWER Certification**
- **UAV-system under Airworthiness**



# RNLAFA Airworthiness Program

JAA

EU



NETH. Legislation



JAR 21

JAA

JAR 145

*LE 21*



*LE 145*

RNLAFA Airw. Requirements

Certification Process

Continued Airworthiness

## Aircraft/Air Vehicle:

Each Machine > Atmosphere > Forces of Air > over 20 kg

Requirement for “pilot on board” traded for “Restricted Area”



# SPERWER/RNLA Program

## 4 SYSTEMS

EACH:

### 1 Ground Component

Launching station  
Ground Control Station  
Ground Data Terminal  
Platoon Maintenance facility  
Flight Safety System

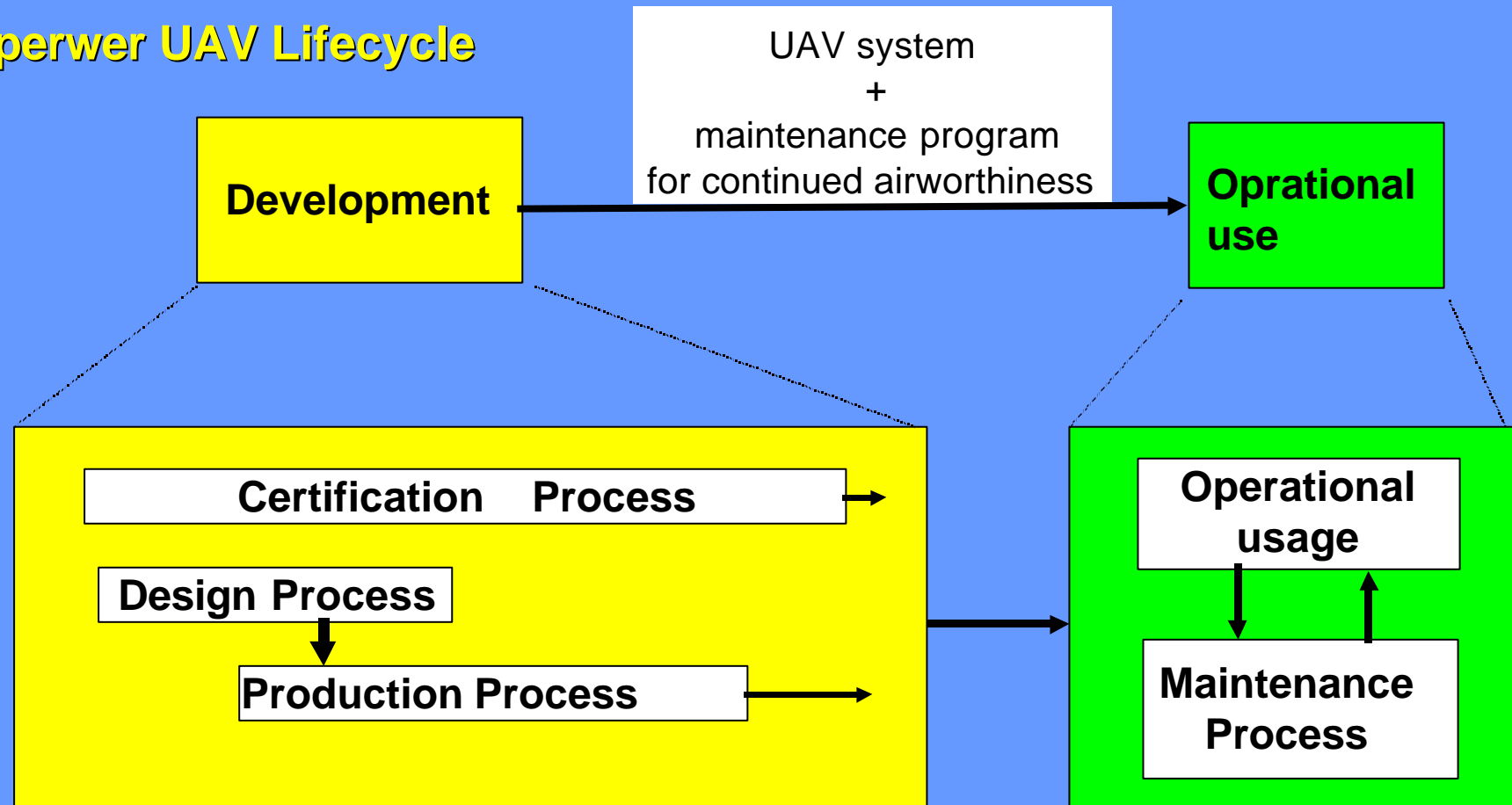
### 8 Air Vehicles

- **CONTRACT: Functional + Airworthiness**
- **Start 1995 >>>>>>>delivery 1999/2000/2001**



# Sperwer-RNLA UAV Certification

## Sperwer UAV Lifecycle





# SPERWER/RNLA Certification Plan

- CERTIFICATION SPERWER
  - Subject of certification
  - Basic Requirements
  - Certification Committee
  - Certification process
    - To be included:
      - Continued Airworthiness (config.man., documentation, maintenance plan, organization)
      - Operational Organization

Goal: >>> Type Certificate for Sperwer System (restricted Area)  
>>> Certificate of airworthiness each AV (restricted Area)





# SPERWER/RNLA Certification plan

Subject of certification  
*AV + "Command Line"*

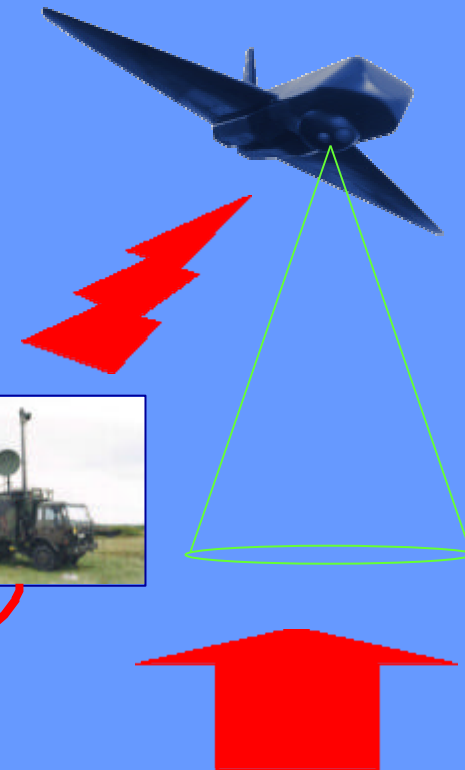
LAUNCHER



GCS - GDT



Flight  
Safety  
System





# SPERWER/RNLA Certification Plan

## BASIC REQUIREMENTS

**In 1995 no Requirements nor Experience (UAV)  
Still a Requirement for Certification!**



- **From JAR/VLA developed:**
  - **Type Requirement Basis Definition (AS96 - 013)**
    - Description Requirements (DR)
    - Means of Compliance Definition

**UAV (sperwer) differences from VLA:  
Software (pre-programmed flight), Up/down link, Rules of Safety**



# SPERWER/RNLA Certification Plan

- **CERTIFICATION Committee**
  - **Director of Materiel RNLA/Q&A**
    - Chair + secretariat + QA (GQAR)
  - **Director of Materiel RNLA/Weapon System Manager**
    - Technical assistance A/C Systems/requirements
  - **Director of Operations RNLA/Ops Research & Eval.**
    - Operational/technical assistance / flight testing
  - **Neth. Aerospace Laboratory (NLR)**
    - Technical assistance
  - **Director of Materiel RNLA**
    - Program / project management + Software & maintenance



# SPERWER/RNLA Certification Plan

- Certification Process (TC + CoA)
  - Further definition of Means of Compliance
  - Compliance Demonstration
    - Design, testing (ground/flight), simulation
    - Airworthiness Compliance Reports
  - Airworthiness Acceptance
    - Configuration + Manufacturing and Inspection File
    - Production and Testing >> Acceptance Test Report
  - GQA all over the process
  - Operational Verification at Mourmelon (Fr)
  - Logistic Verification (Maintenance Concept + documentation)
  - Final Qualification Review



## SPERWER/RNLA Certification

### • MILESTONES

- September 1999 - First system Acceptance by RNLA for test & training , *LIMITED RELEASE* to fly for RNLA OPERATIONAL VERIFICATION at *Mourmelon Range (FR)*
- December 2000 - Temporary Certificate of Airworthiness per AV for flight in *RESTRICTED AREA*
- December 2001 - Final Qualification Review: Type Design ready for Certification
- January 2002 - Type Certificate for RESTRICTED AREA *issued to RNLA* for the Sperwer-RNLA system
- ultimate 2002 - All Air Vehicles upgraded to TC Configuration, CoA for each AV



# SPERWER/RNLA Situation

## EMERGING AIRWORTHINESS PHILOSOPHY

AW AUTHORITY:  
RNLA

TC - Holder: RNLA

OEM: SAGEM (FR)

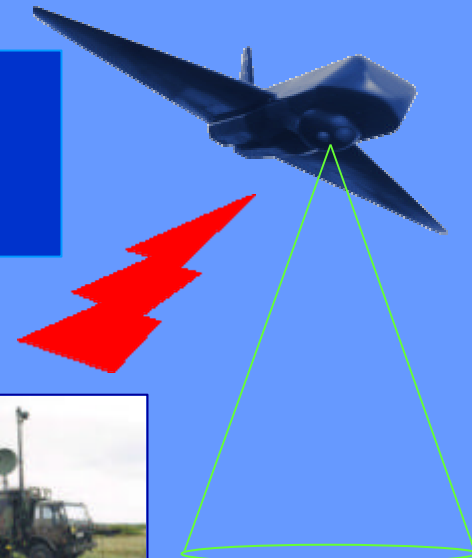
SPERWER/RNLA system

- TC/RA
- COA per AV

GCS - GDT

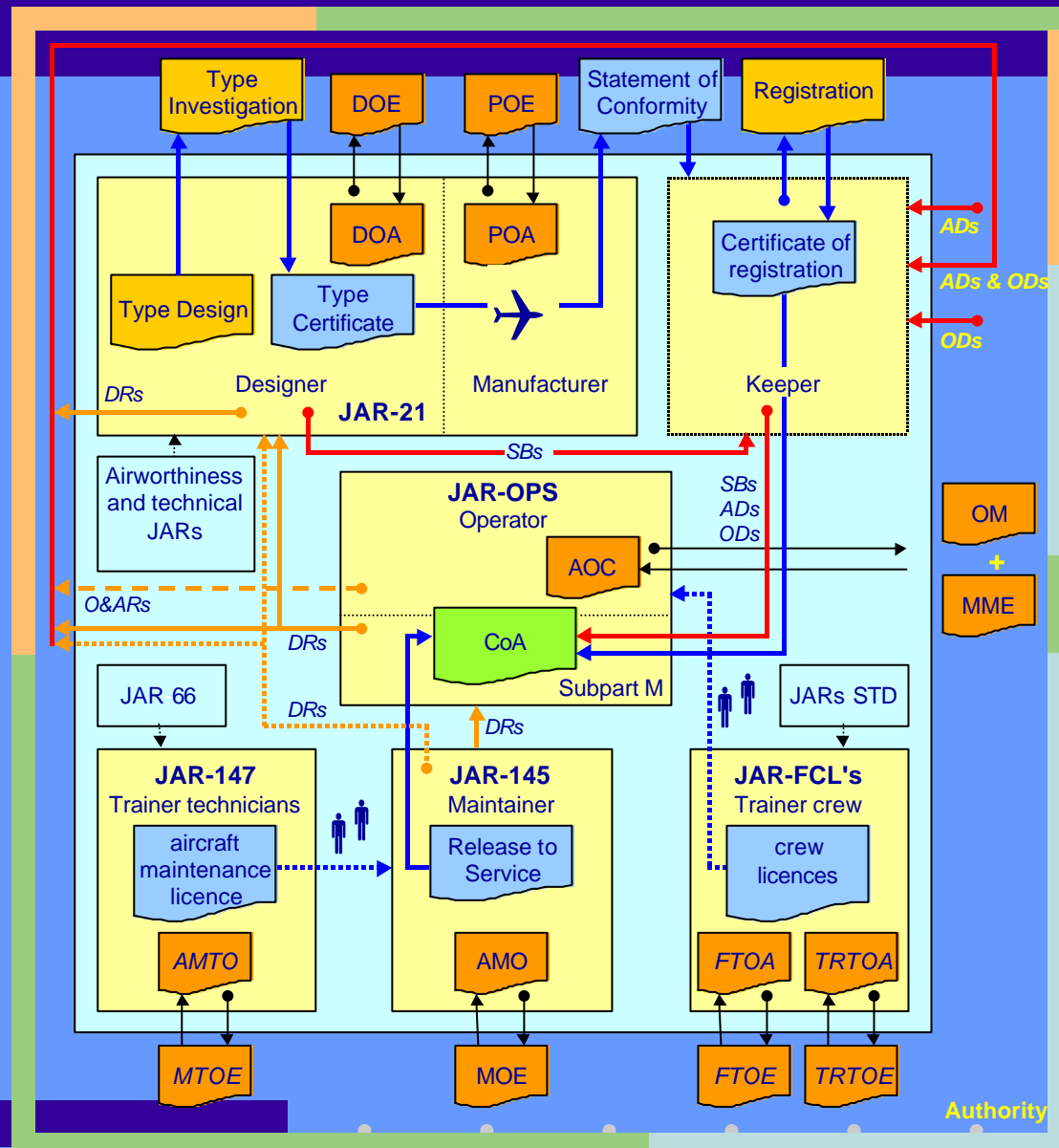


Flight  
Safety  
System



# JAA- philosophy

Certification  
Maintenance  
Operations  
Licensing



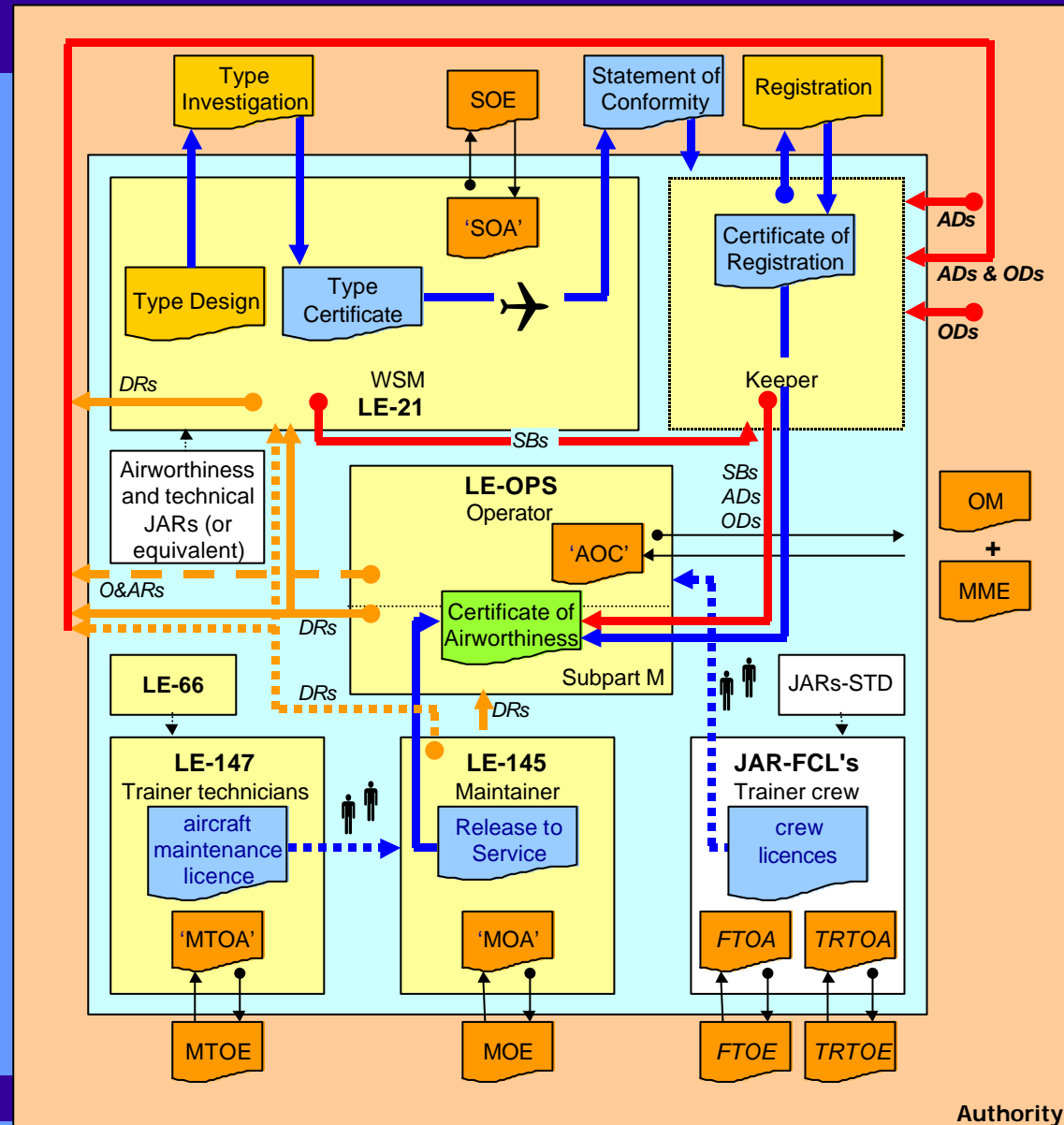
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Authority

# RNLAF Military Aviation Requirements



Certification  
Maintenance  
Operation  
Licensing



16/06/02

Authority 15





# SPERWER Certification Program

AIRWORTHINESS...

**From the *first START* ...**



**...T0 the last FINISH !!!**

16/06/02

